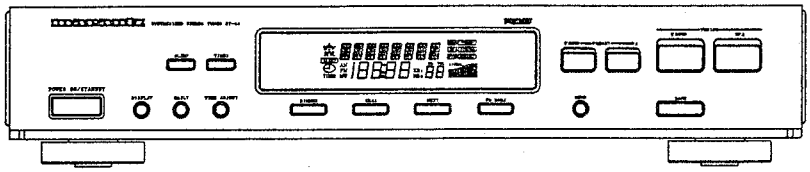
Service Manual

74ST48/01B/02B/05B

Synthesizer Stereo Tuner



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NOTES

- PC boards shown are viewing from parts side.
- The parts with no reference number or no parts number in the exploded views are not supplied.
- As regards the resistors and capacitors, refer to the circuit diagrams contained in this manual.
- Parts of [ ] mark can be used only with the version designated.
  [GE]:GENERAL EXPORT [EUR]:EUROPE [UK]:U.K

Please use this service manual with referring to the user guide (D.F.U.) without fail.

marantz®

model ST-48

4822 725 5117(
First issue : 1998/0
243W855010 3

PCS 98 441

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

USA

MARANTZ AMERICA, INC.
440 MEDINAH ROAD
ROSELLE, ILLINOIS 60172
USA
PHONE : 630 - 307 - 3100
FAX : 630 - 307 - 2687

CANADA

LENBROOK INDUSTRIES LIMITED
633 GRANITE COURT,
PICKERING, ONTARIO L1W 3K1
CANADA
PHONE : 905 - 831 - 6333
FAX : 905 - 831 - 6936

EUROPE / TRADING

MARANTZ EUROPE B. V.
P.O.BOX 80002
BUILDING SFF2
5600 JB EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2732241
FAX : +31 - 40 - 2735578

PROFESSIONAL **USA**

SUPERSCOPE TECHNOLOGIES, INC.
MARANTZ PROFESSIONAL PRODUCTS
1000 CORPORATE BLVD., SUITE D
AURORA, ILLINOIS 60504 USA
PHONE : 630 - 820 - 4800
FAX : 630 - 820 - 8103

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TC ELECTRONICS CANADA LTD.
540 FIRING AVE.
BAIE D'URFÉ, QUEBEC H9X 3T2
CANADA
PHONE : 514 - 457 - 4044
FAX : 514 - 457 - 5524

KOREA

MK ENTERPRISES LTD.
2F SHINHAN BLDG., 247-17 SEOKYO-DONG
MAPO-KU, SEOUL
KOREA
PHONE : +82 - 2 - 323 - 2155
FAX : +82 - 2 - 323 - 2154

BRAZIL

MARANTZ BRAZIL
CAIXA POSTAL 21462
CEP 04698-970
SAO PAULO, SP, BRAZIL
PHONE : 0800 - 123123 (Discagem Direta Gratuita)
FAX : +55 11 534. 8988

THAILAND

MRZ STANDARD CO., LTD.
746 - 754 MAHACHAI RD.,
WANGBURAPAPIROM, PHRANAKORN,
BANGKOK, 10200 THAILAND
PHONE : +66 - 2 - 222 - 9181
FAX : +66 - 2 - 224 - 6795

HONG KONG

FORWARD INTERNATIONAL CORP., LTD.
3/F., BLOCK-B, WO KEE HONG BLDG., 585-609
CASTLE PEAK RD., KWAI CHUNG, N.T.
HONG KONG
PHONE : +852 24942033
FAX : +852 24101656

AUSTRALIA / NEW ZEALAND

SCAN AUDIO PTY. LTD.
52 CROWN STREET, RICHMOND 3121
VICTORIA
AUSTRALIA
PHONE : +61 - 3 - 9429 - 2199
FAX : +61 - 3 - 9429 - 9309

TAIWAN

PAI - YUING CO., LTD.
6 TH FL NO, 148 SUNG KIANG ROAD,
TAIPEI, 10429, TAIWAN R.O.C.
PHONE : +886 (2) 5221304
FAX : +886 (2) 5630415

MALAYSIA

WO KEE HONG ELECTRONICS SDN. BHD.
NO. 102 JALAN SS 21/35, DAMANSARA
UTAMA, 47400 PETALING JAYA
SELANGOR DARUL EHSAN,
MALAYSIA
PHONE : +60 3 - 7184666
FAX : +60 3 - 7173828

JAPAN *Technical*

MARANTZ JAPAN, INC.
35- 1 , 7- CHOME, SAGAMIONO
SAGAMIHARA - SHI, KANAGAWA
JAPAN 228-8505
PHONE : +81 427 48 9379
FAX : +81 427 48 0889

日 本 マ ラ ン ツ 株 式 会 社

本 社 〒228-8505
神奈川県相模原市相模大野 7 - 35 - 1
営業本部 〒150-0022
東京都渋谷区恵比寿南 1 - 11 - 9

SINGAPORE

FORWARD MARKETING (S) PTE. LTD.
23, LORONG 8, TOA PAYOH,
SINGAPORE 319257.
PHONE : +65 2583640
FAX : +65 3564047

SHOCK, FIRE HAZARD SERVICE TEST :

CAUTION : After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard N0. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

1. TECHNICAL SPECIFICATIONS

FM SECTION:

Tuning Range	87.50 MHz - 108.00 MHz (50 kHz steps)
Usable Sensitivity (IHF)	Mono 10 dBf
50 dB Quieting Sensitivity	Mono 10 dBf
	Stereo 33 dBf
Alternate Channel Selectivity (400 kHz)	65 dB
Image Response Ratio	60 dB
Frequency Response	60 dB
Capture Ratio	2 dB
Distortion (at 65 dBf, 1 kHz)	Mono 0.2%
	Stereo 0.3%
Signal-to-Noise Ratio (at 65 dBf, 1 kHz)	Mono 70 dB
	Stereo 65 dB
AM Suppression Ratio	80 dB
Stereo Separation (1 kHz)	40 dB
Output	600 mV

M SECTION:

Tuning Range	522 kHz - 1622 kHz (9 kHz step)
Usable Sensitivity	55 dBm
Selectivity	55 dB (9 kHz)
Image Response Ratio	35 dB
Distortion	1%
Signal-to-Noise Ratio	40 dB (at 85 dB/m)
Output	170 mV

GENERAL:

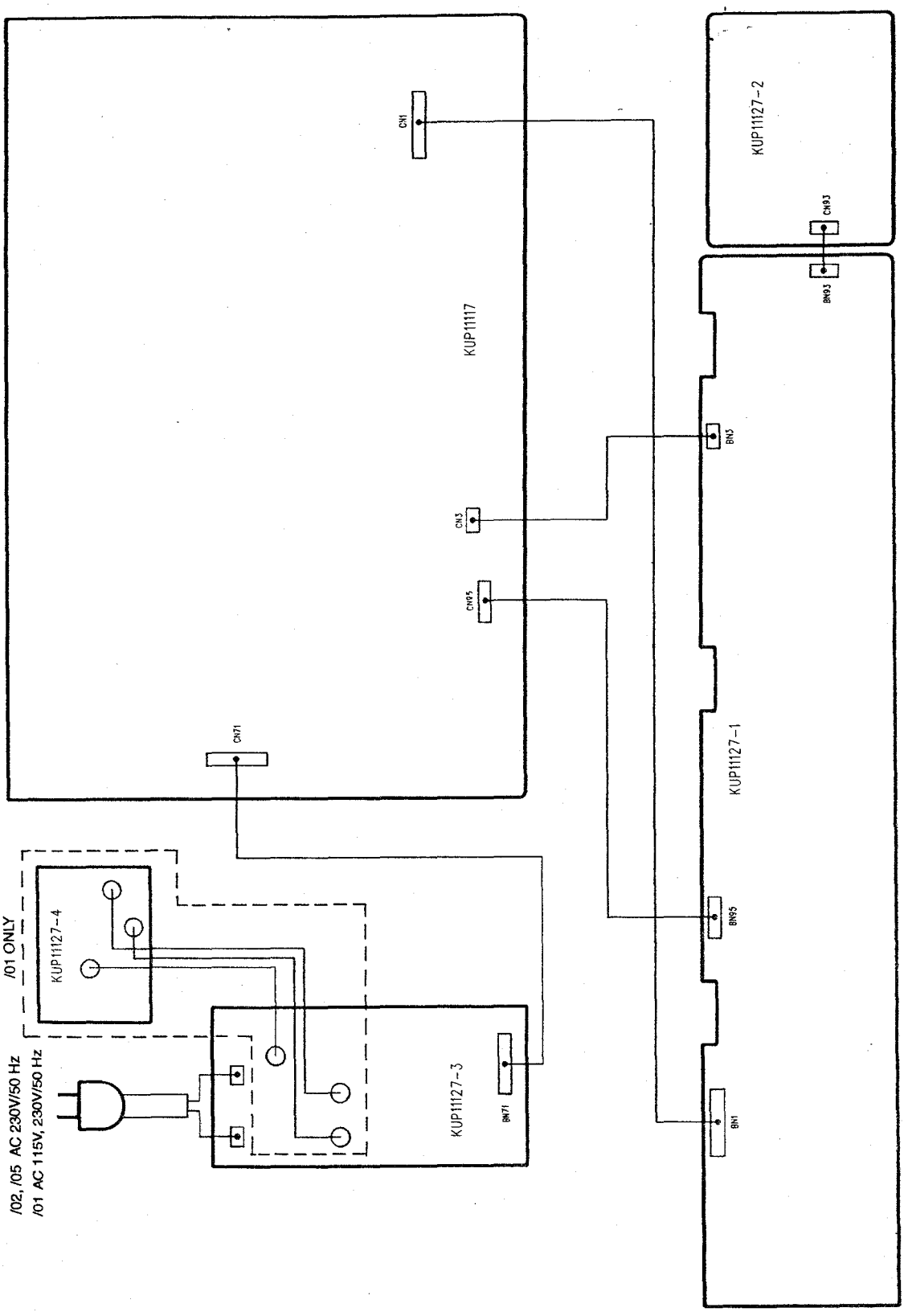
Power Requirements	230V AC, 50 Hz
Power Consumption	6W
Dimensions (W x H x D)	435 x 87 x 294 mm
Weight (net)	2.9 kg

Design and specifications are subject to change without notice.

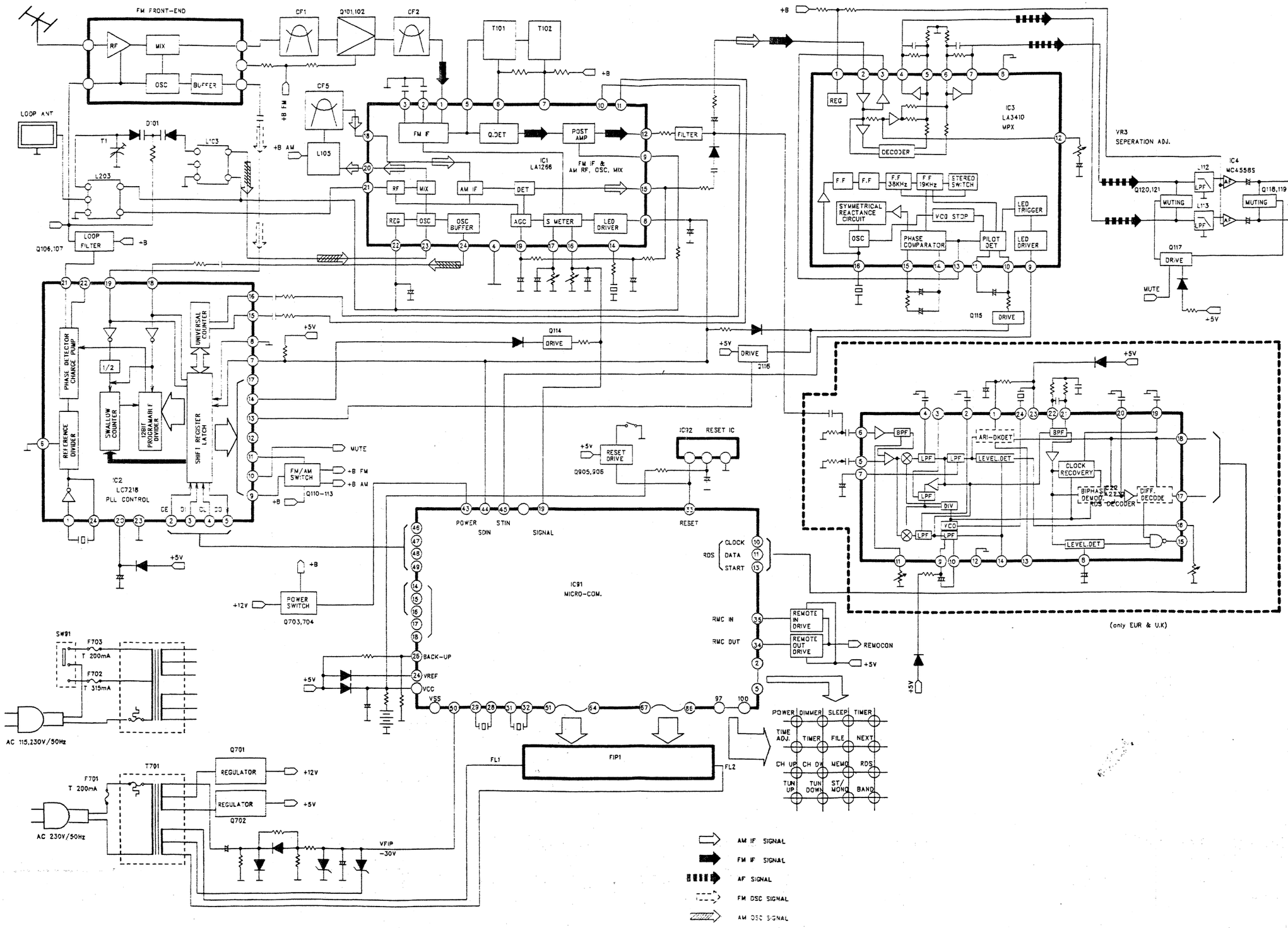
RODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics.
These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc.
Replacement parts which have these special safety characteristics are identified in this manual, electrical components having such features are identified by the schematic diagrams and the parts list.
Before replacing any of these components, read the parts list in this manual carefully.
The use of substitute replacement parts which do not have the same-safety characteristics as specified in the parts list may cause shock, fire or other hazards.

2. WIRING DIAGRAM

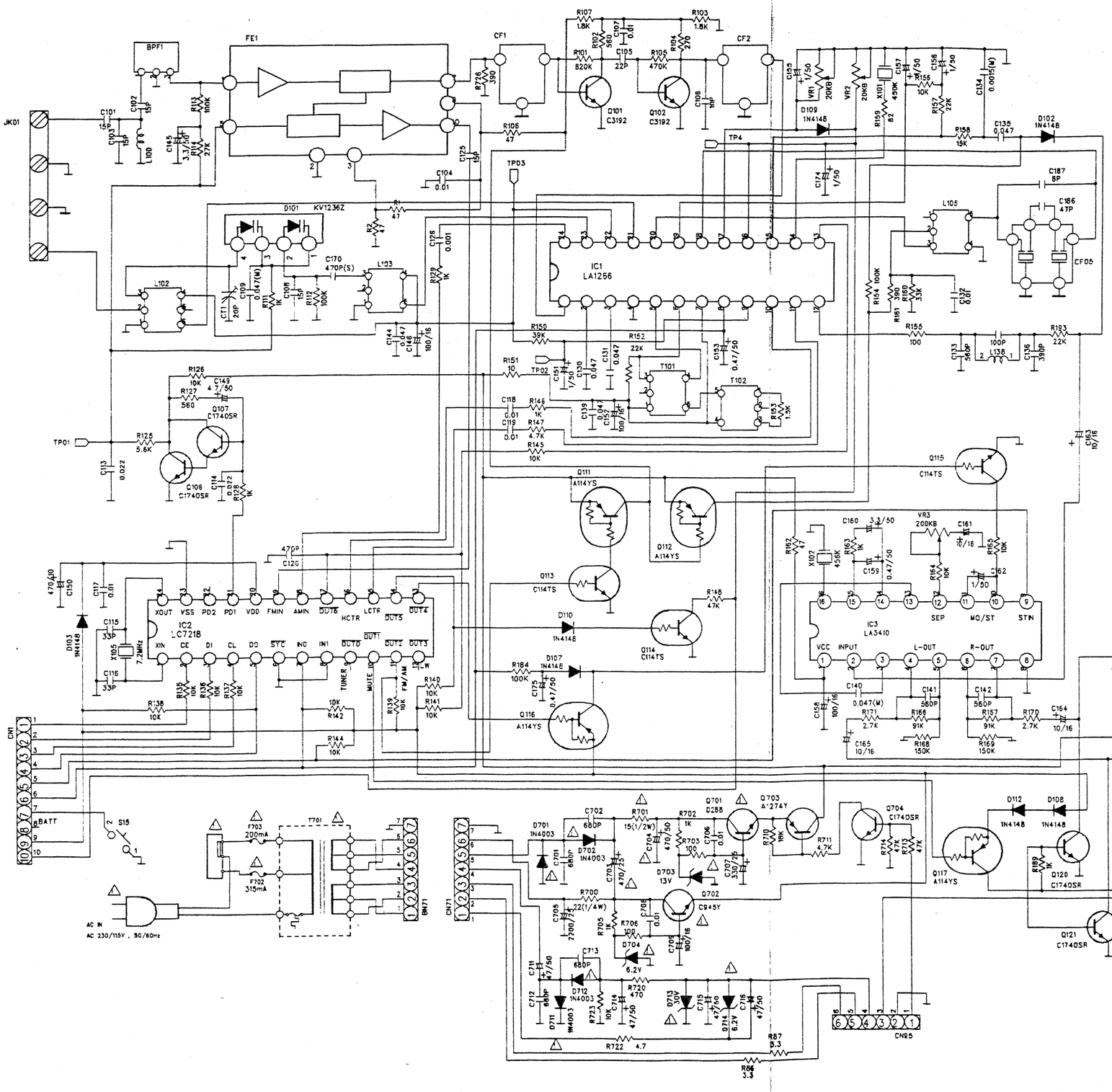


3. BLOCK DIAGRAM



. SCHEMATIC DIAGRAMS AND PARTS LOCATIONS (COMPONENT SIDES)

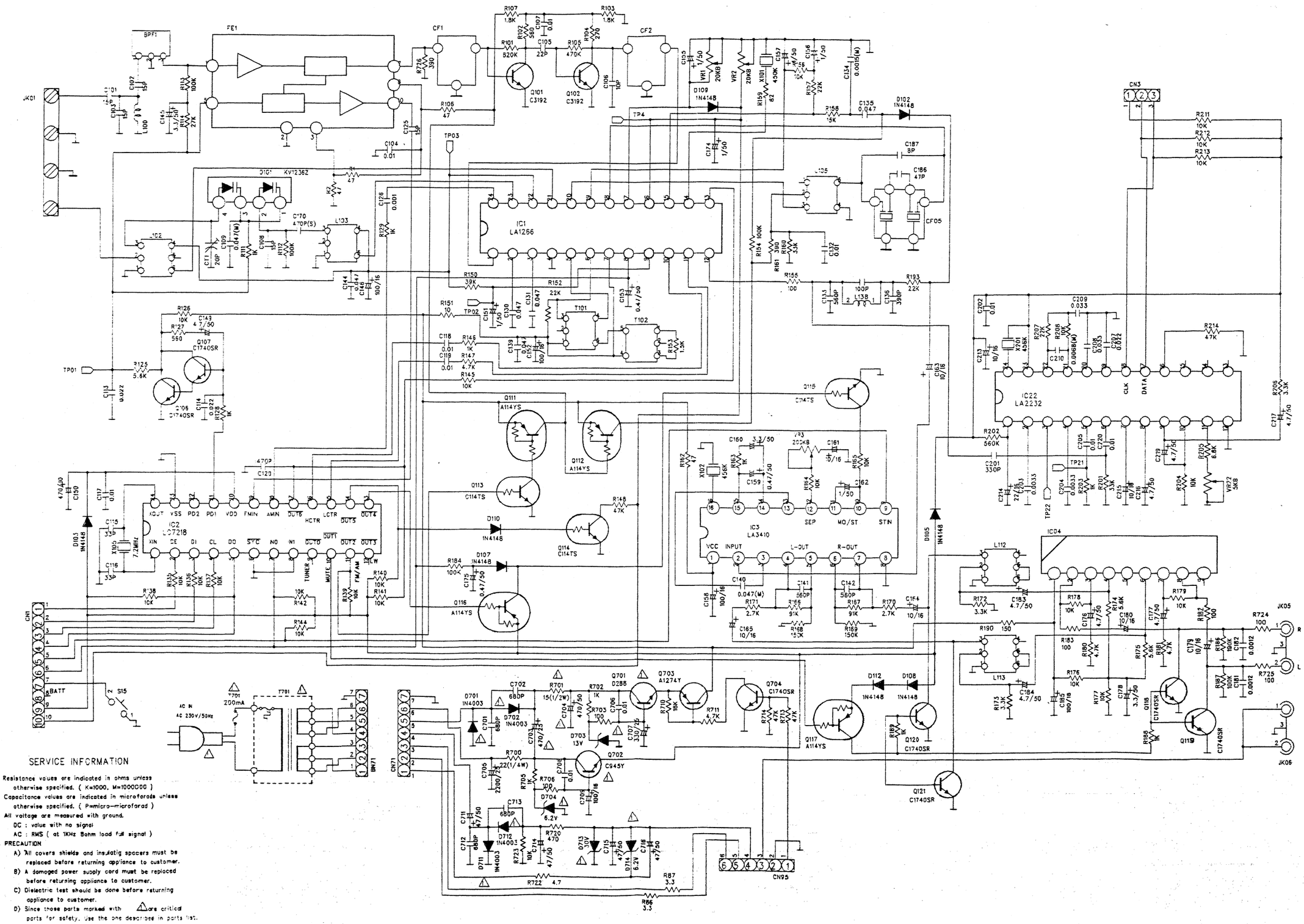
VERSION / 01



SERVICE INFORMATION

1. Resistance values are indicated in ohms unless otherwise specified. (K=1000, M=1000000)
2. Capacitance values are indicated in microfarads unless otherwise specified. (P=micro-microfarad)
3. All voltage are measured with ground.
   DC : value with no signal
   AC : RMS (at 1KHz 8ohm load full signal)
4. PRECAUTION
   A) All covers shields and insulatig spacers must be replaced before returning appliance to customer.
   B) A damaged power supply cord must be replaced before returning appliance to customer.
   C) Dielectric test should be done before returning appliance to customer.
   D) Since those parts marked with ⚠ are critical parts for safety. Use the one described in parts list.

VERSION /02 / 05



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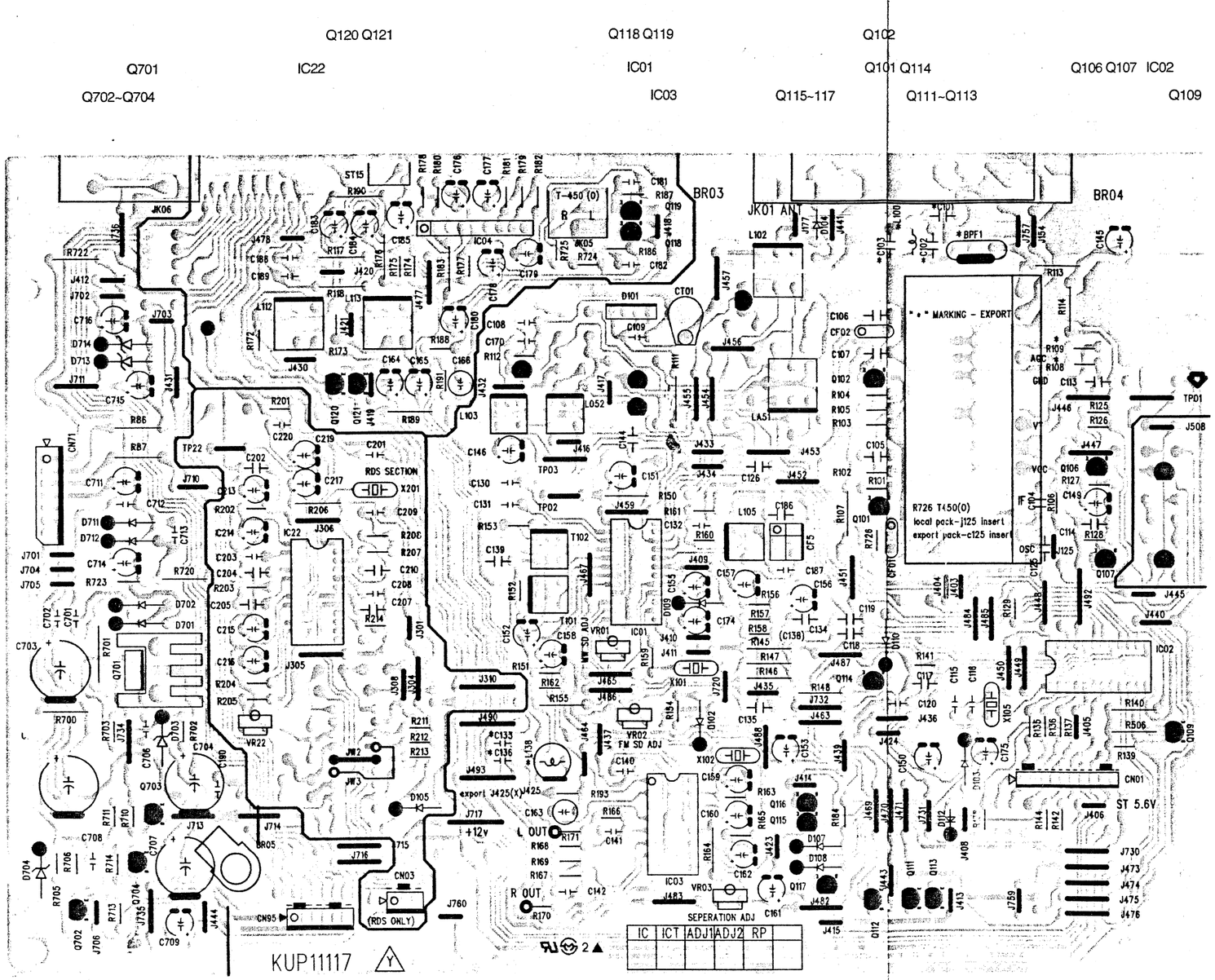

Function of Terminal (IC2)

BVILC7218 (LC7218)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	INPUT	XIN	Connecting terminal for crystal oscillator (7.2MHz)
2	INPUT	CE	Chip enable terminal for serial data input/output.
3	INPUT	DI	Data input terminal for control
4	INPUT	CL	Clock input terminal for control
5	OUTPUT	DO	Data output terminal for control
6	INPUT	SYS	Not used in this unit. (0 V)
7	INPUT	IN0	Control input for data format
8	INPUT	IN1	
9	OUTPUT	OUT0	Not used in this unit.
10	OUTPUT	OUT1	MUTE ON: "H" , MUTE OFF: "L"
11	OUTPUT	OUT2	FM : "H" , AM : "L"
12	OUTPUT	OUT3	Not used in this unit.
13	OUTPUT	OUT4	STEREO : "L" , MONO : "H"
14	OUTPUT	OUT5	Signal indicator driver
15	INPUT	LCTR	Input terminal for IF detector
16	INPUT	HCTR	
17	OUTPUT	OUT6	Output terminal for IF detector
18	INPUT	AM IN	Input for AM OSC output
19	INPUT	FM IN	Input for FM OSC output
20	INPUT	VDD	Power supply terminal
21	OUTPUT	PD1	Output terminal for PLL charge pump.
22	OUTPUT	PD2	Not used in this unit.
23	-	VSS	Ground terminal
24	OUTPUT	XOUT	Connecting terminal for crystal oscillator (7.2MHz)

Function of Terminal (IC91)

BVIANAM1239T (TMP87CK78F-xxxx)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	INPUT	VDD	Power supply terminal
2~5	INPUT	KEY0~KEY3	Input terminal for key
6~10	-		Not used in this unit.
11	INPUT	RDS DATA	Data input terminal for RDS
12	-		Not used in this unit.
13	INPUT	RDS SRART	Clock input terminal for RDS
14~16	-	GND	Ground terminal
17~18	INPUT	OPTION 0,1	Option terminal for area /01B: 17pin L, 18pin H /02B./05B: 17pin L, 18pin L DESCRIPTION OF TERMINAL
19	INPUT	SIGNAL	Signal level indicator drive
20~21	-		Not used in this unit.
22~23	-		Ground terminal
24	INPUT	VREF	Referance power input terminal
25	INPUT	VDD	Power supply terminal
26	INPUT	CE	Power supply detection
27	-		Ground terminal
28	INPUT	IN	Connecting terminal for crystal oscillator.
29	OUTPUT	OUT	The crystal connected is 32.768KHz.
30	-		Ground terminal
31	INPUT	XIN	Connecting terminal for crystal oscillator.
32	OUTPUT	XOUT	The crystal connected is 8.00MHz.
33	INPUT	RESET	System reset terminal
34	OUTPUT	RMC OUT	Remote control output terminal
35	INPUT	RMC IN	Remote control input terminal
36~42	-		Not used in this unit.
43	OUTPUT	POWER	Power on/off signal
44	INPUT	SD IN	Station detection
45	INPUT	ST IN	Stereo indicator drive
46	OUTPUT	DO	Data output terminal for IC2(LC7218)
47	INPUT	CLOCK	Data input terminal for IC2(LC7218)
48	INPUT	DI	Data input terminal for IC2(LC7218)
49	OUTPUT	CE	Chip enable terminal for IC2(LC7218)
50	INPUT	Vfip	FIP drive voltage input
51~64	OUTPUT	G01~G14	FIP digit driver outputs.
65~66	-		Not used in this unit.
67~86	OUTPUT	S01~S20	FIP segment driver outputs.
87~96	-		Not used in this unit.
97~100	OUTPUT		Output terminal for key

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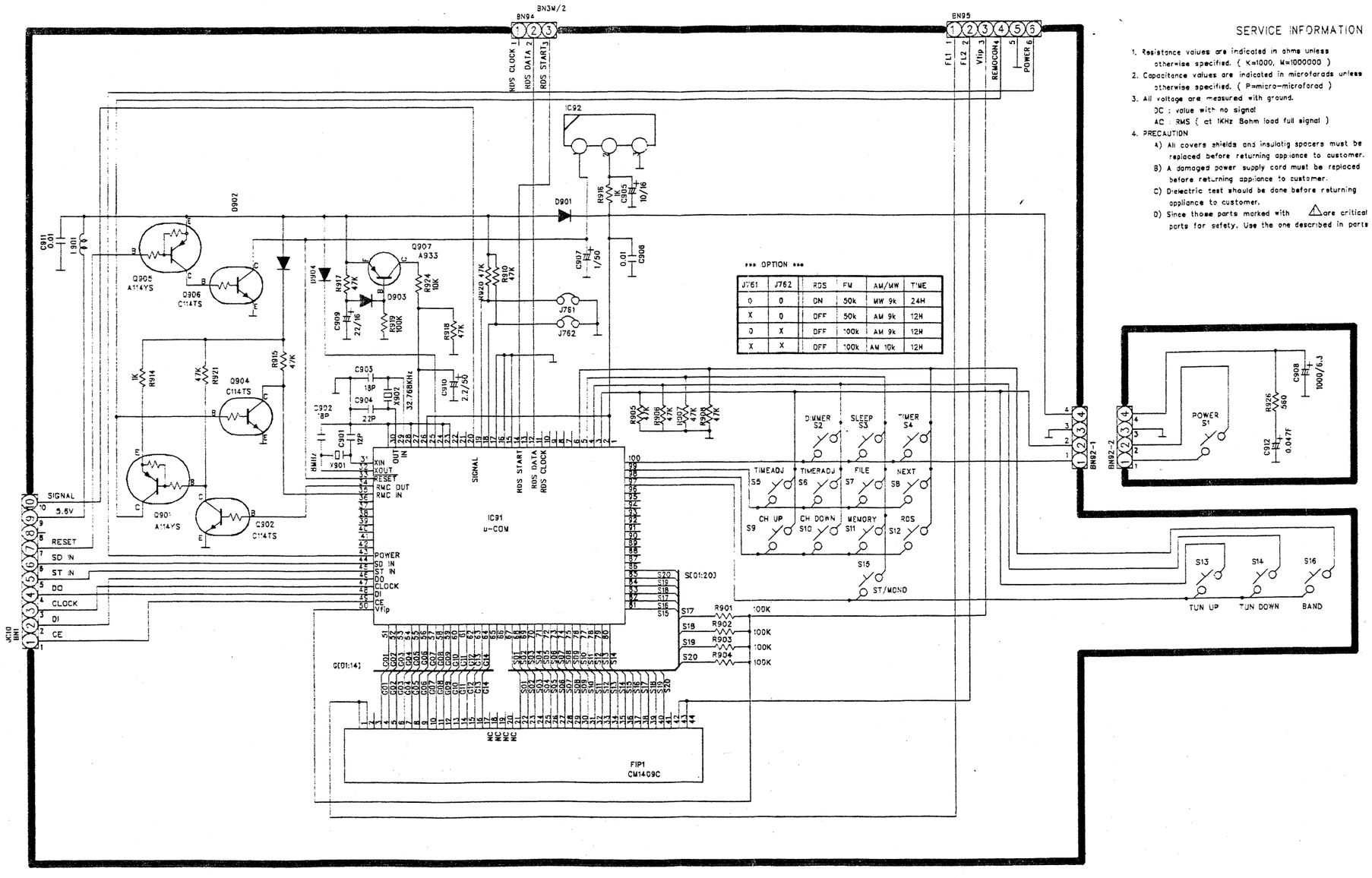
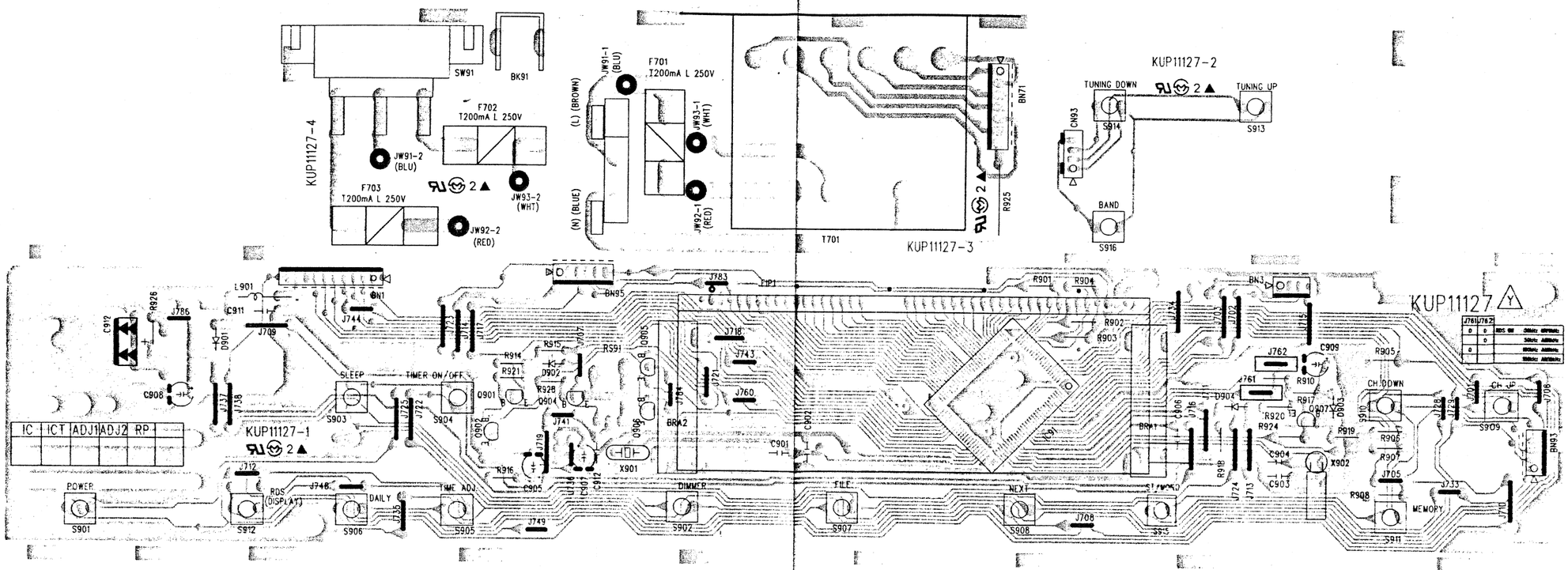


Q901, Q902 Q904 Q905, Q906 IC91 Q907



5. ADJUSTMENT

(1) ALIGNMENT INSTRUCTIONS

Equipment needed:

- AM Signal Generator
- FM Signal Generator
- Oscilloscope
- VTVM (AC,DC)
- Test loop antenna (MW Adjustnent)
  Dummy antenna (FM Adjustment)
- Stereo signal modulator
- Distortion analyzer

IMPORTANT:

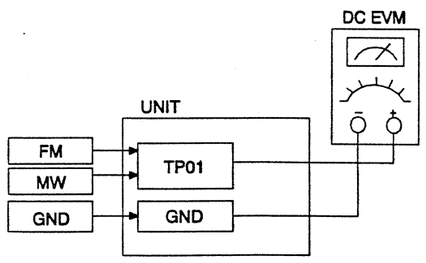
1. Check power-source voltage.
2. Set the function switch to band aligned.
3. Keep the function input as low as possible to adjust accurately.
4. Modulation and modulation frequency is shown below.

	Modulation	Modulation frequency
MW	30%	400 Hz
FM	53.3% (40 kHz)	1 kHz

(2) TUNING FREQUENCY RANGE ADJUSTMENT

(FM) DC voltmeter: Connect to test point, TP01 and GND
(MW) DC voltmeter: Connect to test point, TP01 and GND

No.	Band	Frequency	Adjust for:	Adjustment
1	FM	87.50 MHz	1.5V	L4
2	MW	522 kHz	1V	L103

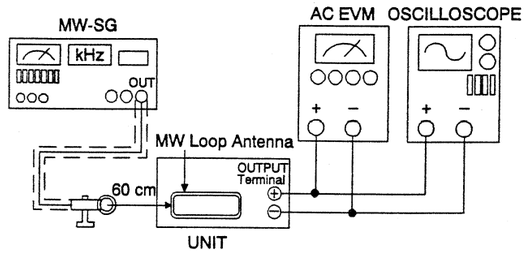


(3) MW TRACKING ADJUSTMENT

Signal generator: Connect to the MW Ant.
Coil through the loop antenna.

1. Adjust the scope to obtain the maximum amplitude of VTVM waveform.

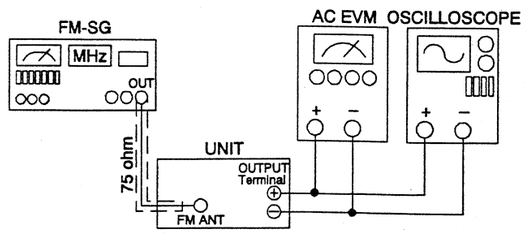
No.	Step	Frequency	Adjust for:	Adjustment
MW	1	612 kHz	Max. sensitivity	L102
	2	1503 kHz	Max. sensitivity	C701
	3	Repeat steps 1 and 2 several times.		



(4) FM-RF ADJUSTMENT

Signal generator: Connect to FM ANT. JACK (FM IN) through the dummy.

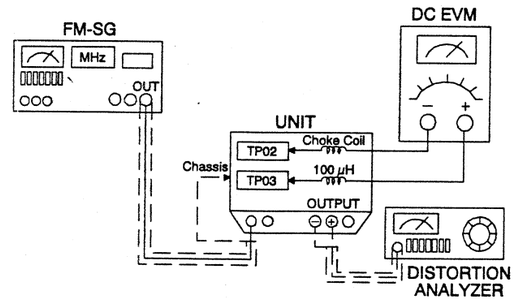
No.	Frequency	Adjust for:	Adjustment
1	90.10 MHz	Max. sensitivity	L1, L2, L3
2	Repeat step 1 several times.		



(5) FM MONO DISTORTION ADJUSTMENT

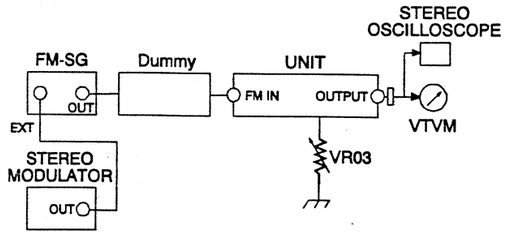
DC voltmeter: Connect to TP02 (–),TP03 (+) through the choke coil (100 µH)
Signal Generator: Connect to FM ANT Jack (FM IN) through the dummy.
Distortion Meter: Connect to the output.

No.	Frequency	Adjust for:	Adjustment
1	100.10 MHz	DC voltmeter 0V	T101
2	100.10 MHz	Min. T.H.D.	T102
3	Repeat steps 1 and 2 several times.		



(6) FM STEREO SEPARATION

Pilot signal	Adjust for:	Adjustment
ON	Difference of R and L must be maximum.	VR03

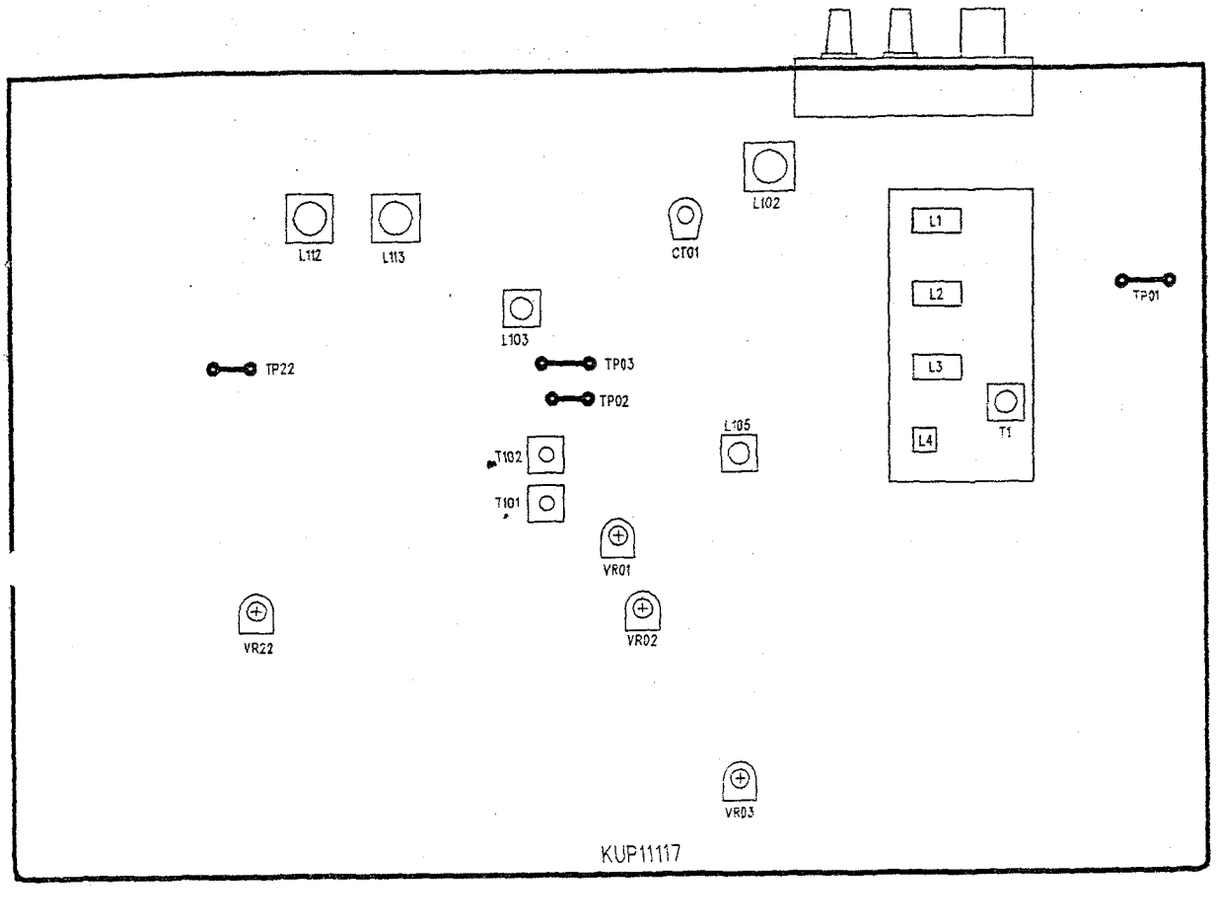


(7) FM/MW TUNED LEVEL ADJUSTMENT

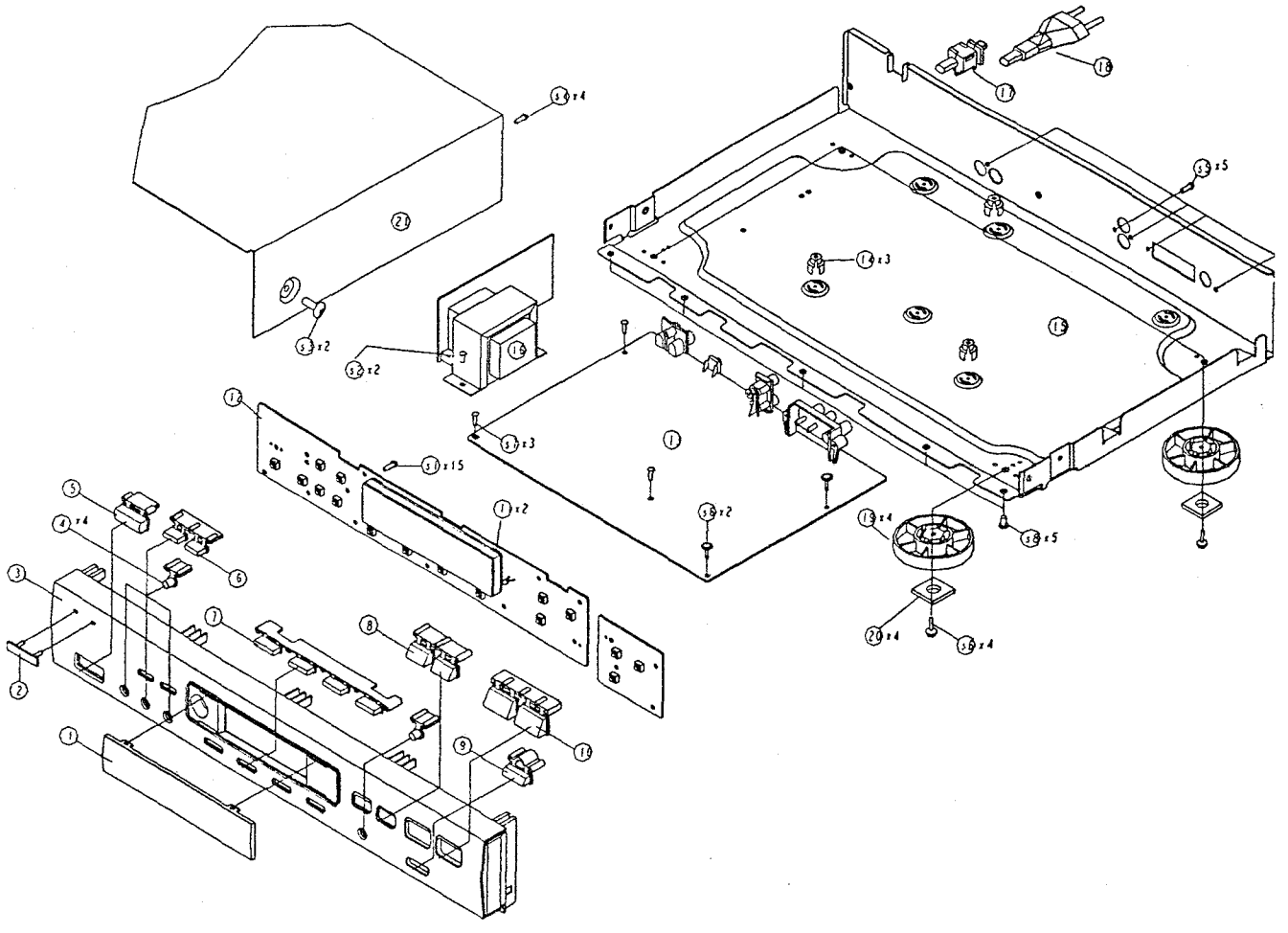
FM signal generator: Connect to FM ANT Jack (FM IN) through the dummy.
MW signal generator: Connect to MW ANT. Coil through Loop antenna.

Band	Step	Signal genrator	Adjust for:	Adjust-ment
FM	1	100.10 MHz 30dB	Tuned ON	VR02
	2	100.10 MHz 30 dB	Tuned OFF	VR02
MW	1	999 kHz 80 dB	Tuned ON	VR01
	2	999 kHz 80 dB	Tuned OFF	VR01

(8) ADJUSTMENT POINT



6. EXPLODED VIEW AND PARTS LIST



Mechanical Parts List

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, ••:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
1		4822 450 10437	WINDOW	243W158010
2			BADGE	243W251010
3	/01B	4822 459 04883	FRONT PANEL (01B)	243W248020
3	/02B /05B	4822 459 04882	FRONT PANEL (02B /05B)	243W248010
4		4822 410 11628	KNOB DISPLAY/DAILY TIME ADJUST/MEMO	243W270030
5		4822 410 11626	KNOB POWER	243W270010
6		4822 410 11627	KNOB SLEEP/TIMER	243W270020
7		4822 410 11632	KNOB MODE/NEXT	243W270060
8		4822 410 11793	KNOB PRESET UP/DOWN	243W270070
9		4822 410 11631	KNOB BAND	243W270050
10		4822 410 11629	KNOB TUNING	243W270040
19		4822 462 11013	FOOT FRONT	243W057010
20			FOOT CUSHION	243W056020
001T		4822 736 15918	USER GUIDE (D.F.U.)	243W851310

7. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R***: 1) GD05 x x x 140, Carbon film fixed resistor, ±5% 1/4W
R***: 2) GD05 x x x 160, Carbon film fixed resistor, ±5% 1/6W
① Resistance value

Examples ;
① Resistance value

0.1Ω	001	10Ω	100	1kΩ	102	100kΩ	104
0.5Ω	005	18Ω	180	2.7kΩ	272	680kΩ	684
1Ω	010	100Ω	101	10kΩ	103	1MΩ	105
6.8Ω	068	390Ω	391	22kΩ	223	4.7MΩ	475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C***: CERAMIC CAP.
3) DD1 x x x x 370, Ceramic capacitor, Disc type, Temp.coeff. P350~N1000, 50V
③ Capacity value
② Tolerance

Examples ;
② Tolerance (Capacity deviation)
± 0.25 pF 0
± 0.5 pF 1
± 5 % 5
* Tolerance of COMMON PARTS handled here are as follows :
0.5 pF – 5 pF ..... ± 0.25 pF
6 pF – 10 pF ..... ± 0.5 pF
12 pF – 560 pF ..... ± 5 %
③ Capacity value

0.5 pF	005	3 pF	030	100 pF	101
1 pF	010	10 pF	100	220 pF	221
1.5 pF	015	47 pF	470	560 pF	561

C***: CERAMIC CAP.
4) DK16 x x x 300, High dielectric constant ceramic capacitor, Disc type, Temp.chara. 2B4, 50V
④ Capacity value

Examples ;
④ Capacity value

100 pF	101	1000 pF	102	10000 pF	103
470 pF	471	2200 pF	222		

C***: 5) ELECTROLY CAP. (⏚), 6) FILM CAP. (⏚)
5) EA x x x x x x 10, Electrolytic capacitor, One-way lead type, Tolerance ±20%
⑥ Working voltage
⑤ Capacity value

Examples ;
⑤ Capacity value

0.1 µF	104	4.7 µF	475	100 µF	107
0.33 µF	334	10 µF	106	330 µF	337
1 µF	105	22 µF	226	1100 µF	118
				2200 µF	228

⑥ Working voltage

6.3 V	006	25 V	025
10 V	010	35 V	035
16 V	016	50 V	050

6) DF15 x x x 350 → Plastic film capacitor
DF15 x x x 310 → One-way type, Mylar ±5% 50V
DF16 x x x 310 → Plastic film capacitor, One-way type, Mylar ±10% 50V
⑦ Capacity value

Examples ;
⑦ Capacity value

0.001 µF(1000pF)	102	0.1 µF	104
0.0018 µF	182	0.56 µF	564
0.01 µF	103	1 µF	105
0.015 µF	153		

NOTE : 1) The above CODES (R***, R***, C***, C*** and C***) are omitted on the schematic diagram in some case.
2) On the occasion, be confirmed the common parts on the parts list.
3) Refer to "Common Parts List" for the other common parts **(RI05, DD4, DK4)**.

NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows ;
1. KOA Corporation

Part No.(MJI)	Type No.(KOA)	Description
NH05 x x x 140	RF25S x x x x ΩJ	(±5% 1/4W)
NH05 x x x 120	RF50S x x x x ΩJ	(±5% 1/2W)
NH85 x x x 110	RF73B2A x x x x ΩJ	(±5% 1/10W)
NH95 x x x 140	RF73B2E x x x x ΩJ	(±5% 1/4W)

* Resistance value
* Resistance value (0.1 – 10kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No.(MJI)	Type No.(MEC)	Description
NF05 x x x 140	ERD-2FCJ x x x	(±5% 1/4W)
RF05 x x x 140		
NF02 x x x 140	ERD-2FCG x x x	(±2% 1/4W)
RF02 x x x 140		

* Resistance value
* Resistance value

Examples ;
* Resistance value

0.1Ω	001	10Ω	100	1kΩ	102	100kΩ	104
0.5Ω	005	18Ω	180	2.7kΩ	272	680kΩ	684
1Ω	010	100Ω	101	10kΩ	103	1MΩ	105
6.8Ω	068	390Ω	391	22kΩ	223	4.7MΩ	475

ABBREVIATION AND MARKS

ANT.	: ANTENNA	BATT.	: BATTERY
CAP.	: CAPACITOR	CER.	: CERAMIC
CONN.	: CONNECTING	DIG.	: DIGITAL
HP	: HEADPHONE	MIC.	: MICROPHONE
µ-PRO	: MICROPROCESSOR	REC.	: RECORDING
RES.	: RESISTOR	SPK	: SPEAKER
SW	: SWITCH	TRANSF.	: TRANSFORMER
TRIM.	: TRIMMING	TRS.	: TRANSISTOR
VAR.	: VARIABLE	X'TAL	: CRYSTAL

NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol ⚠ . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

(VERS. :VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, ••:EUROPE)

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			MAIN PCB	
IC01		4822 209 71785	IC LA1266	HC10222030
IC02		4822 209 30178	IC LC7218	HC10211032
IC03		4822 209 70261	IC LA3410	HC10198030
IC04		4822 209 16073	IC MC4558S	*HC104140R
IC22		4822 209 32706	IC LA2232	HC10315030
▲C703		4822 124 41289	470μF/25V	EA47702510
▲C704		4822 124 41184	470μF/50V	EA47705010
D101		4822 130 81197	DIODE KV1236Z	*HD400120R
D102		4822 130 30621	IN4148	QP13030621
D103		4822 130 30621	IN4148	QP13030621
D105		4822 130 30621	IN4148	QP13030621
D107		4822 130 30621	IN4148	QP13030621
D108		4822 130 30621	IN4148	QP13030621
D109		4822 130 30621	IN4148	QP13030621
D110		4822 130 30621	IN4148	QP13030621
D111		4822 130 30621	IN4148	QP13030621
D112		4822 130 30621	IN4148	QP13030621
▲D701		4822 130 31878	DIODE IN4003S	HD200010AR
▲D702		4822 130 31878	DIODE IN4003S	HD200010AR
▲D703		4822 130 11131	DIODE ZENER UZ13BM	*HD301430R
D704		4822 130 11132	DIODE ZENER UZ6.2BM	*HD301450R
▲D711		4822 130 31878	DIODE IN4003S	HD200010AR
▲D713		4822 130 11133	DIODE ZENER UZ30BM	*HD301440R
D114		4822 130 11132	DIODE ZENER UZ6.2BM	*HD301450R
▲D117		4822 130 31878	DIODE IN4003S	HD200010AR
Q101		4822 130 11134	TR KTC3192O	*HT300480R
Q112		4822 130 11134	TR KTC3192O	*HT300480R
Q106		4822 130 41947	TR 2SC1740SR	HT30001000
Q107		4822 130 41947	TR 2SC1740SR	HT30001000
Q111		4822 130 62787	TR DTA114YS	*BA000190R
Q112		4822 130 62787	TR DTA114YS	*BA000190R
Q113		4822 130 61189	TR DTC114TS	BA20017210
Q114		4822 130 61189	TR DTC114TS	BA20017210
Q115		4822 130 61189	TR DTC114TS	BA20017210
Q116		4822 130 62787	TR DTA114YS	*BA000190R
Q117		4822 130 62787	TR DTA114YS	*BA000190R
Q118		4822 130 41947	TR 2SC1740SR	HT30001000
Q119		4822 130 41947	TR 2SC1740SR	HT30001000
Q120		4822 130 41947	TR 2SC1740SR	HT30001000
Q121		4822 130 41947	TR 2SC1740SR	HT30001000
Q701		4822 130 11135	TR KSD288Y	*HT400350R
Q702		4822 130 10858	TR KTC3227Y	*HT300470R
▲Q703		4822 130 11136	TR KTA1274Y	*HT100320R
Q704		4822 130 41947	TR 2SC1740SR	HT30001000
CF01		4822 242 70911	SFE10.7MS8	FF11070610
CF02		4822 242 70911	SFE10.7MS8	FF11070610
CF05		4822 242 10853	SFZ450F	FF10045290
X101		4822 242 82242	BFU450C4N	*FF100190R
X102		4822 242 81117	CSB456F11	FQ04563010
X105		4822 242 72333	CRYSTAL 7.2MHz	JX07001261
X201		4822 242 81608	CSB456F33	FQ04563040
VR01		4822 101 11853	RES. VARIABLE 20KB	*RA000790R
VR02		4822 101 11853	RES. VARIABLE 20KB	*RA000790R
VR03		4822 101 11854	RES. VARIABLE 200KB	*RA000800R
VR22		4822 101 11855	RES. VARIABLE 5KB	*RA000810R
CT01			CAP.VARIABLE 20pF	*CT000110R
L100			COIL KLA4Y106Z	*LC106640R
L102		4822 157 11483	MW ANT KLA2C002	*LA000080R
L103		4822 157 11484	MW OSC KLO2B006	*LO000060R
L105		4822 157 11485	MW IFT KLI2B103-G	*LI000050R
L138		4822 157 11486	COIL KLQA183KWCZ	*LC106650R
L112		4822 157 11487	MPX COIL KLM5B2-T	*LS000060R
L113		4822 157 11487	MPX COIL KLM5B2-T	*LS000060R

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
T101		4822 157 11488	FM IFT KLT3B020-G	*LI000060R
T102		4822 157 11489	FM IFT KLT3B021-G	*LI000070R
▲R700		4822 116 60318	RES.FUSIBLE 1/4W 22	NH05220142
▲R701		4822 052 11159	RES.FUSIBLE 1/2W 15	NH05150122
FE01		4822 210 10802	FRONT END	*AV000060R
BPF1			BPF KVFBPM88	*BF000020R
JK01		4822 265 11204	TERMINAL ANTTENA	*YT001160R
JK05		4822 265 11205	TERMINAL OUT	*YT001170R
JK06		4822 265 11206	TERMINAL REMOCON	*YT001180R
			SUB PCB (FRONT PCB)	
IC91		4822 209 16159	μ-COM ANAM1239T	*HU243WT0R
D901		4822 130 30621	DIODE IN4148M	QP13030621
D902		4822 130 30621	DIODE IN4148M	QP13030621
D903		4822 130 30621	DIODE IN4148M	QP13030621
D904		4822 130 30621	DIODE IN4148M	QP13030621
Q901		4822 130 62787	DTA114YS	*BA000190R
Q902		4822 130 61189	DTC114TS	BA20017210
Q904		4822 130 61189	DTC114TS	BA20017210
Q905		4822 130 62787	DTA114YS	*BA000190R
Q906		4822 130 61189	DTC114TS	BA20017210
Q907		4822 130 42715	TR 2SA933SR	HT10001000
X901		4822 242 10855	CRYSTAL 8.0MHz	*JX000410R
X902		4822 242 72236	CRYSTAL 32.768KHz	XO001001T2
L901		4822 157 11491	COIL KLQ04C100KV	*LC106630R
▲T701	/02B /05B	4822 146 10925	MAINS TRANSFORMER (230V)	*TS000770R
▲T701	/01B	4822 146 10926	MAINS TRANSFORMER (115/230V)	*TS000780R
FIP1		4822 135 00169	FIPCM1409C	*HQ300300R
C912		4822 124 12129	BACKUP CAP (0.1F)	*EX000030R
▲F701 (F703)		4822 070 32001	FUSE 200mAL/250V	FS10020850
▲F702		4822 070 33151	FUSE 315mAL/250V	FS10031850